REMARKS

Claims 1, 2, 5 and 6 are pending herein. Claims 3, 4, 7 and 8 have been cancelled herein.

I. FORMAL MATTERS

The Final Office Action indicates that the drawings are objected to because Fig. 28 is disclosed on page 25 of the subject specification. Applicant has amended herein "Fig. 28" to "Fig. 17." Therefore, Applicant submits that this objection is overcome.

Claims 3/1 and 4/2 are objected to under 37 C.F.R. 1.75(c) as failing to further limit claims 1 and 2, respectively. Applicant has cancelled claims 3 and 4 herein. Therefore, this objection is moot.

Claims 5 and 6 are rejected under 35 U.S.C. § 101. Although Applicant submits that claims 5 and 6 are proper as presently presented, Applicant has amended claims 5 and 6 herein to recite that the program is embodied in a "computer-readable media," as suggested by the Examiner. Therefore, Applicant respectfully requests the Examiner to withdraw this objection.

Applicant notes with appreciation that the rejection of claims 1-12 under 35 U.S.C. § 112, second paragraph, has been withdrawn.

II. PRIOR ART REJECTION

Claims 1-8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Meshkat (U.S. Patent No. 5,553,206) in view of Applicant's admitted prior art (APA), Schaedel (U.S. Patent No. 6,264,199) and Rossignac, *et al.* (U.S. Patent No. 5,825,369). This rejection is traversed.

The present invention is directed to a technique for representing a shape of a three dimensional object by folding a chain of tetrahedrons. In contrast, Rossignac discloses a technique for representing points of a three dimensional space by folding a mesh of triangles. Therefore, the reference body in the present invention is a three dimensional object (a tetrahedron), and the reference body in Rossignac is a two dimensional object (a triangle). Further, Rossignac teaches a compressed simple triangular mesh with n-dimensional vertices that is a connected, oriented manifold without boundary, and of Euler characteristic 2 (see column 5, lines 32-38). The technique disclosed by Rossignac is applicable only to the meshes without a boundary. Also, Rossignac uses the marching method where a marching method indicates which of the two faces (or edges) is to be connected (see column 9, lines 43-52). That is, if the teachings of Rossignac were applied to tetrahedron meshes, the three-dimensional mesh should have no boundary and one needs three-valued sequences instead of two-valued sequences. And, since the folding of a tetrahedron chain has a boundary, one cannot use this method of Rossignac to represent the folded shape by a three-valued sequence.

Even if the Examiner were to assert that Rossignac suggests that the system of Rossignac can be extended to nth dimensional space, such as a tetrahedron, if this is done, a four dimensional shape should be represented by a collection of the three-dimensional reference bodies packed without a boundary. In general, this would not form a folded chain of the three-dimensional

bodies. Also, Rossignac teaches to cut the surface of an object to obtain the associated mesh (see Fig. 6B and column 10, lines 2-3). On the other hand, in the case of a folded chain of the three dimensional reference bodies, the chain would be broken into pieces if the chain is cut.

Even if the teachings of Rossignac are modified to extend to three dimensional shapes, a person of skill in the art would not have included the feature of "encoding the shape by specifying the folding of the chain" (i.e., "the folding at each longer edge between two consecutive reference bodies in said chain") because the shape to be encoded is not a four-dimensional shape, but a three-dimensional shape.

Further, if Rossignac considered tetrahedrons instead of triangles, there would be three faces to be connected and one skilled in the art should consider three values for each tetrahedron instead of two values (i.e., a tetrahedron has four faces, and a triangle has three edges). Therefore, one skilled in the art would not include the feature of "encoding the shape into a sequence of 0 and 1 using reference bodies."

Meshkat, APA and Schaedel do not make up for the above-noted deficiencies of Rossignac. Specifically, Meshkat teaches nothing about how to encode a mesh of predetermined three-dimensional objects into a binary sequence. Rather, Meshkat makes it more difficult to encode a mesh since he makes the structure of a mesh more complicated by increasing the number of the types of elements of the mesh to reduce the total number of the elements in the mesh. In Schaedel, the "plus" and "minus" values have no information of the contacted shape since they form the same sequence of alternating "plus" and "minus" regardless of the contacted

shape of the tetrahedron ring, and one cannot describe the folding of the tetrahedron ring with them.

Therefore, since the combination of Meshkat, APA, Schaedel and Rossignac does not form that claimed invention, the claimed invention would not have been obvious over these references.

Based on the foregoing, Applicant submits that the present application is now in condition for allowance and respectfully solicits allowance of the same. If the Examiner believes that any issues could be resolved by a telephone conference, Applicant respectfully requests that the Examiner contact the undersigned at the telephone number listed below.

Applicant believes that no additional fees are due for the subject application. However, if for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, you are hereby authorized and requested to charge Deposit Account No. 04-1105.

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Respectfully submitted,

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